RECEIVED
CENTRAL FAX CENTER
APR 10 2007

REMARKS

1. Status of the Claims:

Claims 6 – 12 and 14 are currently pending. Claim 13 has been cancelled. Claim 6 has been amended to include the subject matter of previous claim 13. Claims 6 – 14 have been previously allowed.

2. Affidavit of Rajiv Singh:

The Office determined that previously presented claims 6 – 14 are patentable over the prior art of record, including the publications listed in an IDS filed December 26, 2006. These claims, therefore, were allowed.

Applicants request that the Office confirm its decision regarding the patentability of the current claims in view of data submitted in the attached Affidavit of Rajiv Singh. This data establishes the parameters for azeotrope-like compositions of 1,1,1,3,3-pentafluorobutane (HFC-365mfc) and hydrogen fluoride (HF). In particular, the data shows that an azeotrope-like composition is formed from binary mixtures of HFC-365 and HF, having about 1 – 96 wt% HFC-365mfc (about 4-99 wt % HF) at about 20° C or about 1 – 97 wt% HFC-365mfc (about 3 to 99 wt% HF) at about 40° C.

3. Patentability of the Pending Claims:

The claimed invention is generally directed to a process for purifying HFC-365mfc that involves the formation of an azeotrope-like mixture of HFC-365mfc and HF. In particular, the azeotrope-like mixture consists essentially of from about 90 – 96 weight percent of HFC-365mfc and about 4 – 10 weight percent HF. The claimed invention is patentably distinct over the prior art of record, particularly US 7,074,434 (Lambert).

Lambert teaches a separation process involving an "azeotrope or pseudo-azeotrope composition composed essentially of 1.5 – 27.5 mol % 1,1,1,3,3-pentafluorobutane and 72.5 – 98.5 mol % hydrogen fluoride" (i.e., 10.6 – 74.5 wt % HFC-365mfc and about 25.3 – 89.4 wt % HF). See Lambert, col. 11, lines 64-67. However, this teaching is erroneous in that it advocates the notion that an azeotrope-like mixture of HFC-365mfc and HF does not exist in mixtures containing more than 75 wt. % of HFC-365mfc. Notwithstanding this teaching, Applicants have found that azeotrope-like mixtures of HFC-365mfc and HF exist wherein the HFC-365mfc component is present in a concentration of up to about 99 wt %.

Ascertaining the differences between Lambert and the claims at issue requires interpreting the claim language and considering both the invention and the Lambert as a whole. MPEP 2141.02. Moreover, it is well established that the true test of any prior art relied on to show or suggest that a chemical composition is publicly known for purposes of § 102 or § 103, is whether the prior art places the disclosed composition in the possession of the public. *See e.g., In re Brown,* 329 F.2d 1006, 1011 (C.C.P.A. 1964) *(citing In re LeGrice,* 301 F.2d 929; E. I. *DuPont de Nemours & Co. v. Ladd,* 328 F.2d 547 (D.C.Cir. 1964)); *In re Yale,* 434 F.2d 666, 668 (C.C.P.A. 1970). As described more fully below, Lambert as a whole does not teach an azeotrope composition as currently claimed.

A test for determining whether a particular composition disclosed in a publication is in possession of the public, and hence is prior art precluding a patent, was developed by the Court of Customs and Patent Appeals in *In re Brown*, 329 F.2d 1006 (C.C.P.A. 1964). The court in *Brown* held that "the true test of any prior art relied on to show or suggest that a chemical compound is old, is whether the prior art is such as to place the disclosed 'compound' in the possession of the public." [citations omitted] *Id.* at 1011. Thus, to place an invention in public possession, a reference must teach, or at least suggest, the use of that invention and such a teaching or suggestion must be made available without the exertion of another's own inventive skill. *Brown,* 329 F.2d at 1011.

Here, Lambert teaches that an azeotrope-like composition of HFC-365 and HF occurs when the mixture has more than 10.6 wt. % HFC-365mfc but less than 74.7 wt. % HFC-365mfc. Thus, Lambert not only fails to recognize the true azeotropic properties of HFC-365mfc/HF mixtures, but also erroneously teaches that when an HFC-365mfc/HF azeotrope exists, it cannot contain more than about 74.7 wt. % of HFC-365mfc. Moreover, the data presented by Lambert does not show the formation of an azeotrope above a HFC-365mfc concentration of 74.7 wt. %.

Since it is widely acknowledged that the formation of azeotropes is unpredictable[1], one skilled in the art would certainly not read Lambert and expect

---

[1] Azeotropes by their very nature are deviations from Raoult's Law - an empirical rule which states that the boiling points and vapor pressures of a two-component system will vary in accordance with the

RECEIVED
CENTRAL FAX CENTER
APR 10 2007

to find the azeotrope composition of the claimed invention. Applying the *Brown* test to the disclosure of Lambert, it is clear that Lambert does not place the claimed azeotropic compositions of HFC-365mfc and HF in the possession of the public, and thus, Lambert is not prior art precluding the invention's patentability.

4. CONCLUSION:

For at least the reason mentioned above, the claims are novel and are patentably non-obvious over the prior art of record. Applicants request that the Office confirm the allowability of the pending claims in view of the Affidavit of Rajiv Singh and issue a Notice of Allowance at the earliest possible date. The Office is invited to contact Applicants' undersigned counsel by telephone in order to further the prosecution of this case in any way.

Respectfully submitted,

Dated: 4/10/07

Jimmie Johnson
Registration No. 52,485

Synnestvedt & Lechner
2600 Aramark Tower
1101 Market Street
Philadelphia, PA 19107
Telephone: (215) 923-4466
Facsimile: (215) 923-2189

S:\H\HONEYWELL\Patents\ALLID\P24941-B USA\PTO\Request for Continued Examination.doc

---

concentration of the components between the values of each of the pure components. Since azeotropes do not follow an empirical rule, it is impossible to predict whether an azeotrope will form between any two compounds at some particular temperature and pressure.

The unpredictable nature of azeotropes is well known in the art. *See e.g.*, Appl. of Broadley, 404 F.2d 616 (C.C.P.A. 1968) and Examiner's Answer p. 5